

*Work done at the Kew Observatory.*

(Communicated by Warren De La Rue.)

Pictures of the Solar Eclipse were obtained at the Kew Observatory by means of the Photoheliograph at the following times:—

Dec. 22, 1870.

	h	m	s
(1)	1	7	12.5
(2)	1	12	26.5
(3)	1	17	55
(4)	1	28	29.5
(5)	1	33	21.5

Of the above only Nos. 1, 2, and 5 are capable of being printed to advantage. Had the weather proved favourable a large number of photographs would have been procured.

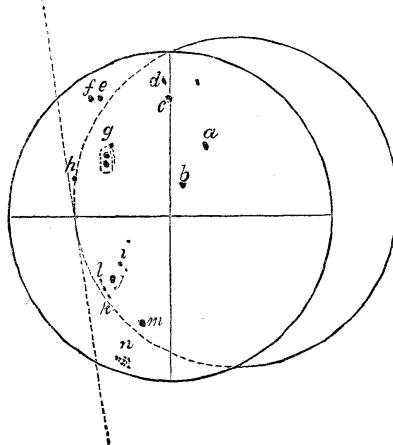
*Solar Eclipse, December 22, 1870.* By John Joynson, Esq.

First contact of limbs       $11^h\ 4^m\ 19^{s.1}$  A.M. G.M.T.Last contact of limbs       $1\ 35\ 55^{s.2}$  P.M.    ,Lens  $3\frac{1}{2}$ -in. Inverting Eye-piece. Power 60.

The eclipse was seen under the most favourable conditions that could be desired at such a late period of the year. The sky was entirely free from cloud while the eclipse lasted; save at about  $1^h\ 15^m$  P.M., when a few streaky clouds passed over the Sun; but which did not in any way interfere with the observations. The weather was exceedingly cold, the thermometer being about  $36^\circ$  even in the Sun's rays, and in the shade there was hard frost all day.

The observation of the first contact of limbs agrees to seven seconds with the calculated time for this place; and that for the last contact to two seconds. This no doubt arises from the fact that the last contact of limbs is always more easy to observe exactly than the first, as the limbs may be in actual contact before the time noted.

B



On the Sun's disk there were a considerable number of spots. The times of disappearance or of reappearance were taken for most of them; and in several cases they were observed both for disappearance and reappearance.

The position of the spots on the diagram must only be considered approximate; being merely eye estimates of their places just before the commencement of the eclipse. The times given are believed to be as exact as such observations will permit.

	D.	R.
	h m s	h m s
a	... 11 16 13	12 32 9
b	... 11 33 54	11 50 29
c	... ...	12 25 4
d	... ...	12 21 54
e	... ...	12 15 39
f	... ...	12 11 45
g	Spot, Upper Middle Lower	12 26 59
		12 29 19
		12 31 44
	Penumb.	11 30 19
h	... 11 51 39	12 16 50
i	... ...	12 55 24
j	... 12 7 4	
k	... 12 13 48	
l	... 12 13 39	12 55 41
m	... 12 15 31	
n	... 12 24 19	

In reference to the spots the only remark seemed to be called for was that the two largest in the N.W. quadrant had very much the appearance of a dumb-bell; being connected together by a series of small black spots in a line between them, and having a wavy line enclosing the whole, as if the enclosed space *had* been one spot. These small black spots between the large ones visibly lessened in size while they were hidden by the Moon.

Very little was seen here of the eclipse of the Moon on the 6th inst., owing to dense cloud, which did not break until it was nearly over.

Waterloo, near Liverpool,  
11th January, 1871.